Vol. 72, No. 10 Established 1894 October 1955

ARCHIVES OF PEDIATRICS

A MONTHLY DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN

JOHN FITCH LANDON, M.D., Editor

LEADING ARTICLES IN THIS NUMBER

Mother's Toxemia and Mental Retardation.
Fatma Munire Esen, M.D. 321

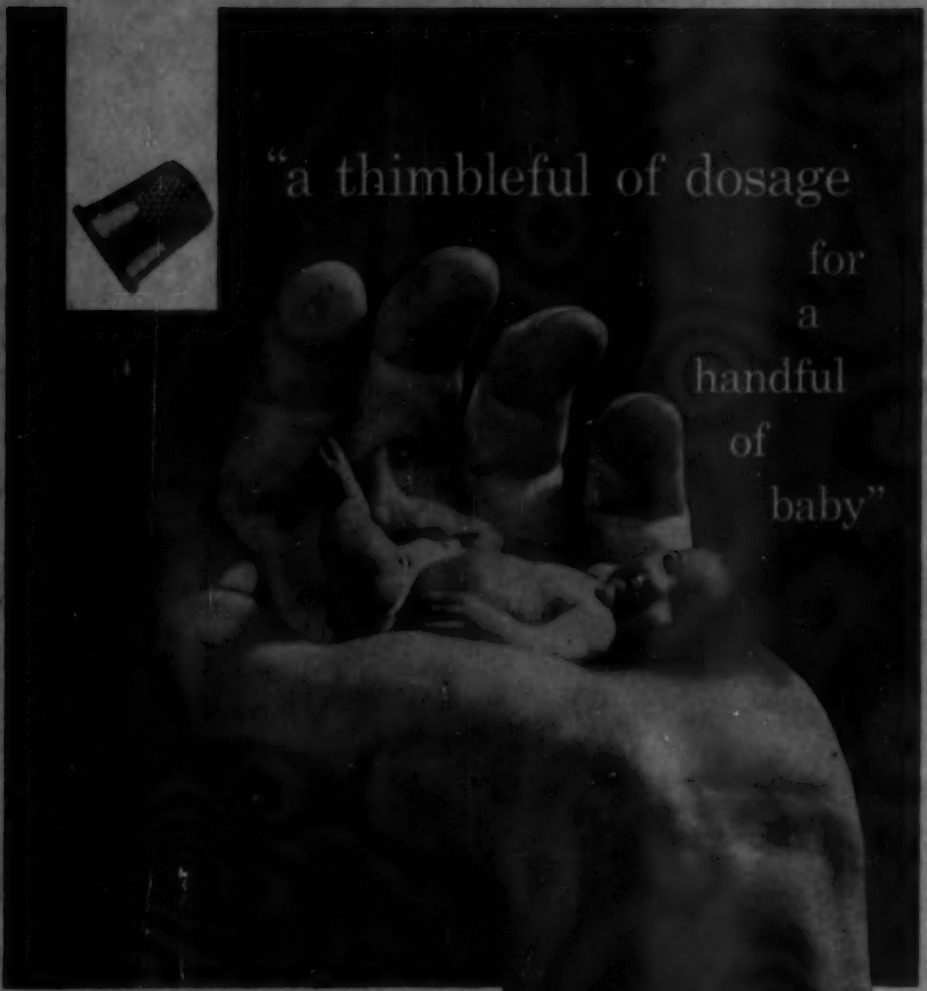
Treatment of Functional Constipation with Prune-Malt.
Anthony J. Maffia, M.D. 341

Pediatrics at the Turn of the Century
The "Diathetic" Child.
Legrand Kerr, M.D. 347

E. B. TREAT & CO., Inc., *Publishers*, 45 East 17th Street, NEW YORK, 3
Yearly Subscription $6.00 (Foreign $6.75); Single Copy, $1.00

COPYRIGHT, 1955, BY E. B. TREAT & CO., INC., ALL RIGHTS RESERVED

Entered as second-class matter Feb. 5, 1892, at New York, N. Y., P. O., under the Act of March 3, 1879



2.5 cc. Hypertussis eliminates massive dosage in whooping cough treatment or passive prevention. A crystal-clear homologous protein, 2.5 cc. Hypertussis contains the gamma globulin equivalent of 25 cc. of human hyper-immune serum. This specific anti-pertussis fraction is concentrated 10-fold to obviate the pain and inconvenience associated with massive dosage—giving you the advantage of

"a thimbleful of dosage for a handful of baby."

Hypertussis will not interfere with the use of antibiotics where they may be indicated.

2.5 cc. Hypertussis is supplied in 2.5 cc. (one dose) vials, ready for immediate intramuscular injection.

CUTTER

CUTTER Laboratories

For whooping cough prophylaxis and treatment specify

2.5cc. HYPERTUSSIS®

(anti-pertussis serum-human)

Select the level of protection the baby needs

NEW

Each 0.6 cc. supplies:

	Vitamin B_{12} (mcg.)	Biotin (mcg.)	Pantheonl (mg.)	Pyridoxine (mg.)	Niacinamide (mg.)	Riboflavin (mg.)	Thiamine (mg.)	Ascorbic acid (mg.)	Vitamin D (units)	Vitamin A (units)
DECA-VI-SOL 10 Nutritionally Significant Vitamins INCLUDING VITAMINS B_{12} AND B_6	1	30	3	3	10	1.5	1	50	1000	5000
POLY-VI-SOL 6 Essential Vitamins					6	0.8	1	50	1000	5000
TRI-VI-SOL 3 Basic Vitamins								50	1000	5000

All are supplied in 15 cc., 30 cc. and economical 50 cc. bottles with the new Mead calibrated unbreakable plastic "Safti-Dropper." It will not break even if the baby bites it.

Deca-Vi-Sol—the new, more comprehensive formula including vitamins B_{12} and B_6—permits even greater flexibility in specifying vitamins for infants and children. Like Poly-Vi-Sol and Tri-Vi-Sol . . .

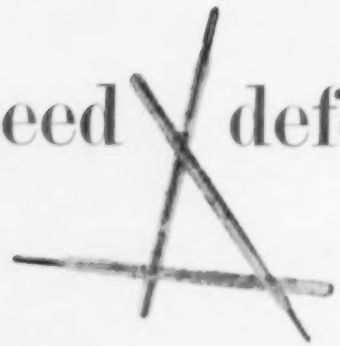
Deca-Vi-Sol is . . . **highly stable** . . . refrigeration not required . . . potency assured . . . **readily accepted** . . . exceptionally pleasant flavor . . . no unpleasant aftertaste . . . **full dosage assured** . . . can be dropped directly into the baby's mouth.

For older children, specify **Mulcin,** the good-tasting, orange-flavored vitamin liquid for teaspoon dosage.

MEAD

SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY • EVANSVILLE, INDIANA, U.S.A.

to speed  defervescence

to speed convalescence

Tetracyn® SF*

Brand of tetracycline

Pfizer-discovered tetracycline fortified with water-soluble vitamins to meet the "stress" demands of fever and infection.

*Trademark for Pfizer brand of antibiotics with vitamins

Pfizer PFIZER LABORATORIES, *Division, Chas. Pfizer & Co., Inc.*, Brooklyn 6, N. Y.

TO CONTRIBUTORS AND CORRESPONDENTS OF

ARCHIVES OF PEDIATRICS

Subscription $6.00 a Year, in Advance **Foreign $6.75** **Single Copy, $1.00**

Editorial Communications address to JOHN F. LANDON, M.D., 120 East 75th Street, New York 21
Business Communications address to E. B. TREAT & Co., INC., 45 East 17th Street, New York 3

ORIGINAL ARTICLES, brief reports of rare and interesting cases, or new modes of treatment are solicited, but none will be considered for publication except with the distinct understanding that it is contributed exclusively to this journal. Manuscripts must be typewritten, double-spaced, and the original, not the carbon, copy submitted. The editor and publishers will not be responsible for views expressed.

ILLUSTRATIONS, as in the judgment of the editor are necessary, will be furnished free when satisfactory photographs or drawings are supplied. Photographs must be clear and distinct: drawings must be in India ink on white paper.

COPYRIGHT. — Original communications appearing in this journal are protected by copyright and can not be reproduced, either wholly or in part, without permission of the publishers.

REPRINTS of articles appearing among "Original Communications" may be ordered immediately upon receipt of galley proof by communicating direct with the publishers, E. B. Treat & Co., Inc., 45 East 17th Street, New York 3, who will supply their schedule of prices.

DISCONTINUANCES. — The publishers must be notified when a subscriber wishes his journal stopped and all arrearages must be paid. Without such notification it is assumed that a continuance is desired. Journals returned are not notice of discontinuance.

REMITTANCES should be made by check, draft, post office or express money order. If currency is sent, the letter should be registered. Stamps in amounts under one dollar are acceptable.

CHANGE OF ADDRESS NOTICE should give both the old and the new and state if change is permanent or temporary.

CONTENTS

ORIGINAL COMMUNICATIONS

Mother's Toxemia and Mental Retardation.
FATMA MUNIRE ESEN, M.D. 321

Treatment of Functional Constipation with Prune-Malt.
ANTHONY J. MAFFIA, M.D. 341

PEDIATRICS AT THE TURN OF THE CENTURY

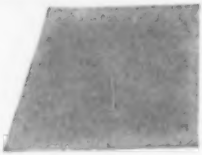
The "Diathetic" Child.
LEGRAND KERR, M.D. 347

(Continued on page 4)

Select the level of protection
the baby needs

NEW

DECA-VI-SOL
10 Nutritionally Significant Vitamins
INCLUDING VITAMINS B_{12} AND B_6



Deca-Vi-Sol—the new, more comprehensive formula including vitamins B_{12} and B_6—permits even greater flexibility in specifying vitamins for infants and children. Like Poly-Vi-Sol and Tri-Vi-Sol . . .

Deca-Vi-Sol is **highly stable** . . . refrigeration not required . . . potency assured . . . **readily accepted** . . . exceptionally pleasant flavor . . . no unpleasant aftertaste . . . **full dosage assured** . . . can be dropped directly into the baby's mouth.

For older children, specify **Mulcin,** the good-tasting, orange-flavored vitamin liquid for teaspoon dosage.

(Continued from page 3)

BOOK REVIEWS

Handbook of Pediatrics. By Henry K. Silver, M.D.; C. Henry Kempe, M.D. and Henry B. Bruyn, M.D. 153

Proceedings of the Third Medical Conference of Muscular Dystrophy Associations of America, Inc. 353

ITEMS

Congenital Heart Disease in Infants Diagnosed by Aid of Heart Catherization and Angiography 340

Active Immunization against Diphtheria in Nurslings with Anatoxins Adsorbed on Aluminum Hydroxide and Aluminum Phosphate: Comparative Responses to the Two Vaccines 352

Anemia in Premature Infants 354

Neonatal Convulsions 354

Each 0.6 cc. supplies:

	Vitamin B_{12} (mcg.)	Biotin (mcg.)	Panthenol (mg.)	Pyridoxine (mg.)	Niacinamide (mg.)	Riboflavin (mg.)	Thiamine (mg.)	Ascorbic acid (mg.)	Vitamin D (units)	Vitamin A (units)
	1	30	3	1	10	1.5	1	50	1000	5000
POLY-VI-SOL 6 Essential Vitamins				6	0.8	1	50	1000	5000	
TRI-VI-SOL 3 Basic Vitamins								50	1000	5000

All are supplied in 15 cc., 30 cc. and economical 50 cc. bottles with the new Mead calibrated unbreakable plastic 'Safti-Dropper.' It will not break even if the baby bites it.

MEAD | SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY • EVANSVILLE, INDIANA, U. S. A.

For **CONSTIPATED BABIES**

A gentle laxative modifier of milk. One or two tablespoonfuls in day's formula – or in water for breast fed babies – produce marked change in stool. Send for samples.

BORCHERDT MALT EXTRACT CO.
217 N. Wolcott Ave. Chicago 12, Ill.

Borcherdt **MALT SOUP** *Extract*

---

in whooping cough

ELIXIR BROMAURATE

GIVES EXCELLENT RESULTS

Cuts short the period of illness and relieves the distressing spasmodic cough. Also valuable in **Bronchitis** and **Bronchial Asthma.**

In four-ounce original bottles. A teaspoonful every 3 to 4 hours.

Extensively Used in Pediatric Practice.

GOLD PHARMACAL CO. **NEW YORK CITY**

Until Full Growth Is Attained.....

To supply vitamins essential to development of normal bones, muscles, tissues, teeth, *in milk dispersible form without the likelihood of producing allergic reactions:*

Drisdol and Drisdol with A are convenient and pleasant to administer to infants and children. They diffuse completely in milk... do not impair its flavor... do not separate, float or adhere to bottle or glass... may be given in other liquid or solid foods. Since they are *pure synthetic* vitamins, they are not likely to produce allergic reactions.

DRISDOL, bottles of 5, 10 and 50 cc.
DRISDOL with Vitamin A, bottles of 10 and 50 cc.

WINTHROP-STEARNS INC.
New York 18, N. Y. • Windsor, Ont.

Drisdol, trademark reg. U. S. Pat. Off.

DRISDOL
IN PROPYLENE GLYCOL
10,000 units of synthetic vitamin D_2 per Gram
(250 units per drop)
Odorless · Tasteless

WINTHROP

DRISDOL
WITH SYNTHETIC VITAMIN A
DISPERSIBLE
10,000 units of synthetic vitamin D_2, 50,000 units of synthetic vitamin A per gram (250 units vitamin D_2 and 1250 units vitamin A per drop)

Lysine plus vitamins
for better appetite,
faster growth—

New!

INCREMIN*

Lysine-Vitamin Drops

Here, at last, is an effective remedy for poor appetite and slow growth in infants and children! Lysine, an amino acid, has shown remarkable results in stimulating the rate of growth of infants, particularly those with poor appetites. Vitamins B_1, B_6, and B_{12} have long been recognized as appetite stimulants. INCREMIN combines these four essential nutrients.

Cherry-flavored INCREMIN Drops can be added to milk, milk formula, or other liquid. An unbreakable "squeeze" bottle facilitates accurate, easy dispensing for the parent.

In 15 cc. polyethylene dropper bottle.
Dosage: 0.5 to 1 cc. (10-20 drops) daily.
Each cc. (20 drops) contains:

l-Lysine HCl	300 mg.
Vitamin B_{12}	25 mcgm.
Thiamine HCl (B_1)	10 mg.
Pyridoxine HCl (B_6)	5 mg.
Alcohol	1%

GERIATRIC USES, TOO! INCREMIN may also be prescribed as an appetite stimulant for the elderly patient.

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY
PEARL RIVER, NEW YORK

Lederle

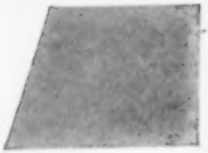
*REG. U.S. PAT. OFF.

Select the level of protection the baby needs

NEW

DECA-VI-SOL

10 Nutritionally Significant Vitamins
INCLUDING VITAMINS B_{12} AND B_6



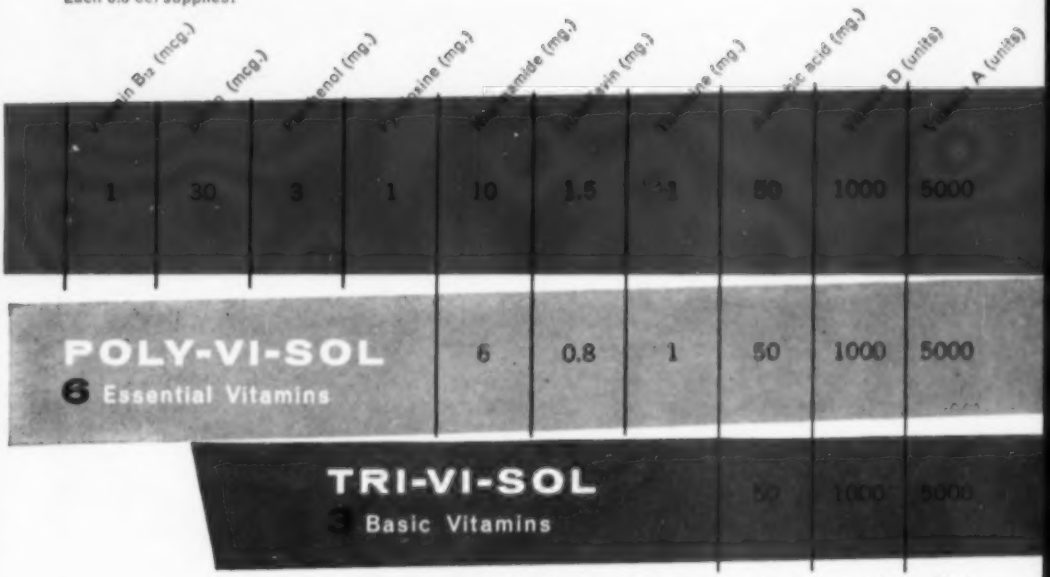
Deca-Vi-Sol—the new, more comprehensive formula including vitamins B_{12} and B_6—permits even greater flexibility in specifying vitamins for infants and children. Like Poly-Vi-Sol and Tri-Vi-Sol . . .

Deca-Vi-Sol is **highly stable** . . . refrigeration not required . . . potency assured . . . **readily accepted** . . . exceptionally pleasant flavor . . . no unpleasant aftertaste . . . **full dosage assured** . . . can be dropped directly into the baby's mouth.

For older children, specify **Mulcin,** the good-tasting, orange-flavored vitamin liquid for teaspoon dosage.

GIVE

Each 0.6 cc. supplies:



All are supplied in 15 cc., 30 cc. and economical 50 cc. bottles with the new Mead calibrated unbreakable plastic 'Safti-Dropper.' It will not break even if the baby bites it.

MEAD | SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY • EVANSVILLE, INDIANA, U.S.A.

AS THEY FIND IT—

"PRACTICAL"

"The very concise and brief clinical reports that appear in the ARCHIVES each month have been very helpful to me, and *I have found more practical suggestions in them than most of the long and drawn out scientific articles that appear in other journals.*"

"I want to tell you that after subscribing for about 16 years, *I get more practical pediatrics from your journal than from either of the other pediatric journals to which I subscribe.*"

"Because it is *concise and progressive* I consider ARCHIVES OF PEDIATRICS my favorite among pediatric journals. I always look forward with pleasure to the receipt of each number and *glean much of value from it.*"

"The only pediatric journal now on file there (Ellis Hospital, Schenectady) is the American Journal of Diseases of Children and I feel that *yours will be of more practical value to the general practitioners.*"

(Names on Application)

ARCHIVES OF PEDIATRICS
45 East 17th St., New York

EARLY DIAGNOSIS + PROMPT TREATMENT

Higher Cancer Cure Rates

Simple office detection and diagnostic procedures make it possible for you to help prevent one-third of current annual cancer deaths.

The General Practitioner can obtain free, up-to-date information on early detection, diagnosis and treatment of cancer, from the American Cancer Society.

Professional Films

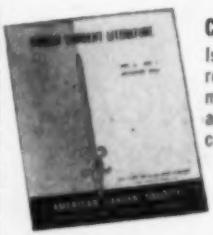
A series of 24 kinescopes* of color television clinical teaching conferences, entitled "Physicians' Conferences on Cancer," presented by leading clinicians in the cancer field; plus about 150 other films on cancer detection, diagnosis and treatment.

CA — A Bulletin of Cancer Progress

Published bimonthly. Digests and abstracts of current articles on cancer in the medical literature of practical value to the doctor. Also contains feature articles, questions and answers, news items, clinical conferences, etc.

Monograph Series

Published about twice yearly. Series of textbooks on cancer by site, emphasizing detection and diagnosis for the practicing physician, written by outstanding clinicians.



Cancer Current Literature

Issued monthly. Listing of current articles appearing in the medical literature, domestic and foreign, pertaining to cancer in whole or in part.

Journal Cancer

Published bimonthly. A Professional Journal bridging the gap between the investigator in his laboratory and the physician at the bedside. Latest results and applications of clinical cancer research.

For information about these and other materials, write **Your Division** of the

American Cancer Society

*Approved by the American Academy of General Practice for Informal Study Credit. (16 mm color sound films; running time 30-50 minutes)

They're ALL Instant!

Instant S-M-A Powder means *instant* convenience for busy mothers . . . just as it means dependable nutrition for their babies.

It's 1, 2, 3, 4—empty, measure, shake, and pour. That's all there is to it.

And Instant S-M-A Powder is the same distinguished formula that physicians everywhere have long prescribed.

Supplied: Glass jars of 3.54 oz. Each jar makes 26 oz. of S-M-A formula.

Wyeth
Philadelphia 2, Pa.

INSTANT **S-M-A**® POWDER

Modern Infant Formula

Select the level of protection the baby needs

NEW

DECA-VI-SOL

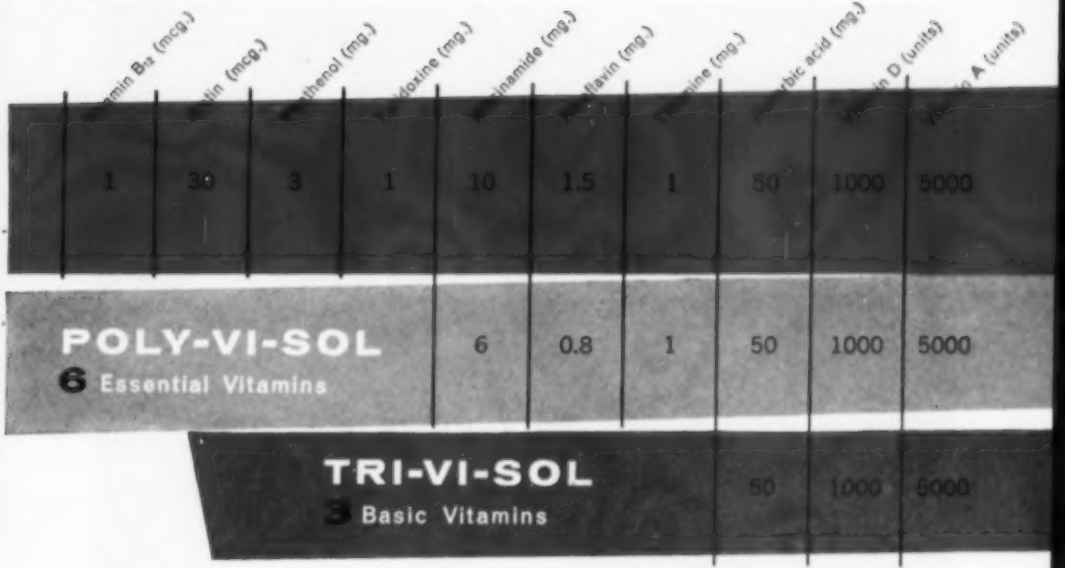
10 Nutritionally Significant Vitamins
INCLUDING VITAMINS B_{12} AND B_6

Deca-Vi-Sol—the new, more comprehensive formula including vitamins B_{12} and B_6—permits even greater flexibility in specifying vitamins for infants and children. Like Poly-Vi-Sol and Tri-Vi-Sol . . .

Deca-Vi-Sol is **highly stable** . . . refrigeration not required . . . potency assured . . . **readily accepted** . . . exceptionally pleasant flavor . . . no unpleasant aftertaste . . . **full dosage assured** . . . can be dropped directly into the baby's mouth.

For older children, specify **Mulcin,** the good-tasting, orange-flavored vitamin liquid for teaspoon dosage.

Each 0.6 cc. supplies:



All are supplied in 15 cc., 30 cc. and economical 50 cc. bottles with the new Mead calibrated unbreakable plastic 'Safti-Dropper.' It will not break even if the baby bites it.

MEAD

SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY • EVANSVILLE, INDIANA, U. S. A.

4 U.S.P. *Pancreatin*

VIOKASE

NOT *enteric coated*

WHOLE PANCREAS–*Not an Extract*

An accepted clinically effective preparation in the treatment of disorders due to pancreatic insufficiency.

*Shwachman, H., The Child in Health and Disease, Grulee and Eley, 2nd Edit.

Shwachman, H. and Leubner, H., Advances in Pediatrics, VII, 249, 1955.

Kagan, B. M., Illinois Medical Journal, 107, 120, 1955.

Butler, A., Harvard Medical School.

Gibbs, G. E., Bradley, J. E., and Minar, J. V., J.A.M.A. 145: 1187, 1951.

Hall, D. A., Biochem. Journal 59, 459, 1955.

Everson, T. C., Grossman, M. I., and Ivy, A. C.: Bulletin of Amer. College of Surgeons, January, 1950.

Detailed information available on request.

VIOBIN CORPORATION

MONTICELLO • ILLINOIS

PRESCRIPTION SERVICE

FOR

ALLERGIC DISEASES

ALLERGENIC EXTRACTS, DIAGNOSTIC and THERAPEUTIC

Devoted exclusively to the manufacture of pollen, fungus, epidermal, food, dust, and miscellaneous allergenic extracts for the diagnosis and treatment of allergic conditions.

A pollen check list for your state and other literature sent on request.

U. S. Government License No. 103 since 1929

ALLERGY LABORATORIES, INC.

Pasteur Medical Building

1111 N. LEE AVENUE

OKLAHOMA CITY 1, OKLAHOMA

new!

SPECIFIC FOR "CRADLE CAP"

Softens and separates the scales from the scalp.

Restores normal physiologic function of the scalp epithelium and glands.

CRADOL
WITH DIAPARENE CHLORIDE
DIRECTIONS: To guard against "cradle cap" (crusts and scales on scalp) and scalp infection, gently massage CRADOL into infant's scalp 3 times a week. To relieve "cradle cap", gently massage CRADOL into scalp 3 times daily. At the end of 7 days, shampoo with mild soap and use a fine comb or soft brush. Apply CRADOL daily to help prevent recurrence.
CONTAINS: Di-isobutyl cresoxy ethoxy ethyl dimethyl benzyl ammonium chloride in a suitable emulsified base.
FOUR FLUID OUNCES
BENSON-NUEN LABORATORIES, INC. DISTR.
NEW YORK 10
TORONTO 19

another first by the makers of Diaparene® Chloride.

Cradol contains natural oils which protect the scalp against drying elements, lubricates the scalp and prevents recurrence of cradle cap.

Cradol prevents secondary infection. It contains Diaparene Chloride a well recognized and clinically proven antibacterial agent.

Supplied in 4 oz. bottles. Literature and samples on request

BENSON-NUEN LABORATORIES, INC. • NEW YORK 10, N. Y. • TORONTO 19, CANADA
A Subsidiary of Homemakers' Products Corporation

ARCHIVES OF PEDIATRICS

VOL. 72 OCTOBER 1955 No. 10

JOHN FITCH LANDON, M.D., Editor

EDITORIAL BOARD

HAROLD R. MIXSELL, M.D., New York PHILIP M. STIMSON, M.D., New York
REUEL A. BENSON, M.D., New York JOHN ZAHORSKY, M.D., St. Louis
FREDK. H. WILKE, M.D., New York

MOTHER'S TOXEMIA AND MENTAL RETARDATION

FATMA MUNIRE ESEN, M.D.
Pathologist, Wrentham State School
Wrentham, Mass.

It was generally believed that eclampsia in a pregnant woman was the result of an intoxication, although it had never been possible to find a substance involved. Experience showed that a very high percentage of children born to toxemic (eclamptic) women died in the prenatal period. Thus, it seemed natural to presume that some poison passes from the mother to the child, and that it is this poison which kills the offspring. This hypothesis became especially significant when Schmorl[21-24], Lubarsch[16], Bar[2], and many others affirmed that still-born children of eclamptic mothers showed damages to the liver, kidneys, and even to the brain, analogous to those found in the mother herself. If these children showed spasms, they too were considered "eclamptic." It is true that today the general trend of thought has changed, and still-born children of eclamptic mothers now generally are considered victims of a damage during delivery. Nevertheless, we actually find that toxemia is still listed in statistics as one of the causes of still-birth, along with mechanical injury or asphyxia, as an independent and important factor.

Entres[9] investigated *260* children born to mothers affected with eclampsia. Forty-seven of them (33.9 per cent) were still-born; 56 children, who were born alive, died in the first six months of life. The author had the opportunity to examine 43 of the surviving children and found five of them mentally retarded. He explained this condition as the outcome of birth injury in three

cases, and affirmed that, in general, still-birth in cases of eclampsia occurs as an aftermath of birth trauma. Neugarten[18] studied 123 cases of children born to eclamptic mothers. Forty-four of them died at birth (35.2 per cent); 81 children had been discharged; re-examination was possible in only 38 instances. Only one child, who weighed 1,500 gr. at birth, was retarded in mental development. Bund[5] investigated 83 children born to 76 women: 15 of these were still-born; 9 infants died shortly after birth; 59 babies were discharged. The author followed the later fate of 49 children; 15 of them died. Seven of the dead children weighed 2,500-3,000 gr. at birth; all of these children died during the first three months of life, some in convulsions, and as a result of injury to the brain. Two died under circumstances which made it impossible to determine the cause of death. Seven infants of this group weighed more than 3,000 gr.; they died at ages varying from five months to six years. Dieckmann and Brown (1939) stated that the mortality rate is 26 per cent among the viable prematures born to toxemic mothers. This is about 4 per cent higher than among viable prematures in all cases. The author explained that the difference was partly due to the high incidence of intracranial injury to babies born to eclamptic mothers. Drillien[8] (1947) concludes that the high mortality of children born to eclamptic mothers is exclusively caused by low birth weight.

Twenty-two patients out of a population of 2,200 at the Wrentham State School have a definite history of toxemia during pregnancy of the mother. We would like to analyze these cases from the point of view of a birth traumatic injury as a probable cause of mental deficiency in children born to eclamptic mothers. This study cannot be used for statistical purposes. It does not include information regarding the number of damaged children born to toxemic mothers in general, and it does not refer to those children who are born to eclamptic mothers but who are not mentally retarded. Here we have tried only to evaluate the effect of toxemia on our patients. The results are seen in Tables 1, 2 and 3.

CASE REPORTS

Case 1. W. L., white male, born June 1, 1911, by premature delivery at six months and three weeks. Birth weight 2½ pounds. Fifth pregnancy; delivery was prolonged, difficult and instru-

TABLE 1

Age		*Mental Age*		*I.Q.*	
C.A. Years	Number	M.A. Yrs. Mos.	Number	I.Q.	Number
5 to 15	12	0 to 1-11	8	0 to 19	8
16 to 25	6	2 to 5-11	11	20 to 49	9
26 to 37	3	6 to 7-11	3	50 to 61	5
38 to 44	1		—		—
	22		22		22

TABLE 2. *Data Concerning Mother*

Age at Birth		*Type of Delivery*	
18-20 yrs.	5	Forceps	4
21-30 yrs.	10	Face presentation and forceps	1
31-40 yrs.	5	Breech presentation and forceps	1
41- yrs.	1	Breech presentation	1
	—	Prolonged	4
	22	Prolonged and forceps	4
Type of Toxemia		Cesarean	2
Convulsive	7	Twin, instrumental prolonged, difficult	1
Non-convulsive	15	Twin, breech presentation	1
	—	Twin, induced labor	1
	22	Spontaneous	2
			—
			22

TABLE 3. *Data Concerning Child*

Birth Weight		*Deviations*	
2 lbs.-5¼ lbs.	9	Microcephaly	1
5 lbs. 9 ozs.-9 lbs. 13 ozs.	10	Hydrocephaly	2
Not stated	3	Hydrocephaly, facial paralysis	1
	—	Mongoloid	2
	22	Mongoloid, cataract	1
Term of Birth		Epilepsy, cataract	1
Premature	11	Epilepsy	1
Full term	11	Epilepsy, blind quadriplegia	1
	—	Deaf, blind	1
	22	Deaf, behavior problem	1
		Hemiplegia	1
		Harelip, cleft palate	1
		Behavior problem	5
		Behavior problem, torticollis	1
		Psychosis	1
		Over-activity	1
			—
			22

mental. Mother was 32 years of age at time of patient's birth. Mother developed eclampsia at 6½ months of pregnancy which necessitated early delivery by induced labor. Baby was in an incubator for ten weeks; had convulsion at the age of one month but no seizures since. Developmental retardation was noticed shortly after birth. The child was admitted to the Wrentham State School at the age of 11 years. He is well-nourished with asymmetrical face, marked alternating strabismus and poor vision. Psychological examination revealed a mental age (M.A.) of 5 8/12 years and an I.Q. of 35.

Family History. Father died of pneumonia. He was physically and mentally healthy. Mother was a high school graduate, and has always been in good health. The patient has three brothers and one sister, all of whom are normal. No consanguinity of parents. The patient, at present, does not see clearly but dresses himself, helps on the farm and attends entertainments. He has a very quick temper.

Case 2. D. J., white female, born April 13, 1932. Premature twin, delivery at seven months by induced labor. Birth weight 5 pounds. First pregnancy; mother was 25 years of age at time of patient's birth. The twin girl died of respiratory failure at five days of age. Mother developed high blood pressure, albuminuria and edema at 6½ months of pregnancy, and had convulsions at seven months of pregnancy which lasted five days. Before delivery, mother had been given large amounts of morphine and chloral hydrate. She died of pulmonary embolism twelve hours after childbirth. At five months of age, it was noted that the child did not use her right arm nor leg as much as the left side. She began to walk at 2 to 3 years of age. P.E.G. showed a large air-containing space, quite irregular, approximately 5 cm. in diameter involving the left hemisphere, communicating with the left ventricle. The right lateral ventricle was slightly enlarged.

Diagnosis. "Mental retardation, cerebral palsy, secondary to eclampsia, porencephalic cyst." She was admitted to the Wrentham State School at 14 years of age. She had hemiplegia of the right arm, leg and face. The right arm was shorter (arm by one inch; forearm by 1½ inches) and thinner; the right leg was thinner and ¼ inch shorter than the left. While the right foot was fixed in middle position, with the fourth toe bent under the

other toes; the right wrist and fingers were fixed in flexion, and only the thumb could be extended. There was right internal strabismus, reflexes were hyperactive, bilateral Babinski was present. The child had a two inch long scar on the lateral side of the right forearm; a five inch long scar on the inner forearm; a four inch long scar on the lateral aspect of the right knee (scars were the result of operations to correct spasticity). Psychological examination revealed an M.A. of 7 2/12 years and an I.Q. of 48.

Family History. Parents were intelligent and in good health. No consanguinity of parents. No other children in the family. At present the patient helps in the building, is quiet, polite and attentive.

Case 3. F. M., white male, born at full term by prolonged, instrumental delivery. First pregnancy. Mother was 26 years of age at time of patient's birth. She developed high blood pressure, ankle edema, albuminuria at the beginning of the eighth month of pregnancy. A cephalhematoma, 8 cm. in diameter, over the right parietal region was diagnosed after birth. Peculiarities were noticed at one year of age, manifesting themselves by retardation of motor development. The patient walked at two years of age and started to talk at three years. He was admitted to the Wrentham State School at 9 years of age. He is a well-nourished, hydrocephalic boy (head circumference 57½ cm.); shows a right facial paralysis, has alternating internal strabismus, flat occiput, large outstanding ears; mild lordosis; undescended testicles. Psychological examination revealed a M.A. of 4 2/12 years and an I.Q. of 61.

Family History. Father unknown. Mother appears rather nervous but healthy, and is of normal intelligence. At present, the patient attends kindergarten; all entertainments; has a good disposition.

Case 4. W. G. J., white male, born February 11, 1941, by premature delivery at seven months. Birth weight 3 pounds 7 ounces. Second pregnancy; prolonged delivery. Mother was 19 years of age at birth of patient. She developed high blood pressure, albuminuria, edema at the beginning of the seventh month of pregnancy. She became unconscious after her arrival at the hospital (the baby was born on the same day) and did not regain consciousness until two days later, but left the hospital in good

condition. The child remained in the hospital for one and a-half months because he was a feeding problem from birth. He showed retardation of motor development, walked at 19 months and talked at 2 years of age. At 3 years of age he was admitted to the mental hospital for observation of unmanageable behavior, with violent temper tantrums. The examination of blood, urine, x-ray of the skull, and a P.E.G. were negative. He was treated with benzedrine in large doses for a period of 8 days, without any improvement and was admitted to the Wrentham State School at 3 years of age. He is a well-nourished boy with asymmetrical face, dolichocephalic head (circumference 36.6 cm.; length 17 cm.; width 12.7 cm.) marked left internal strabismus, epicanthal folds, left ptosis, pupils are unequal in size, the right being larger than the left, reacting to light and accommodation (L. and A.); has a high, narrow palate; undescended testicles; left foot smaller than right foot; spastic hyperactive reflexes, especially on the left side; left positive Babinski; left knee clonus; slightly spastic gait, and sagging arches.

Psychological Examination revealed a M.A. of 2 8/12 years and an I.Q. of 70. Another test, 11 years later, at the age of 14 years revealed a M.A. of 7 4/12 years with an I.Q. of 53.

Family History. The father deserted the family. The mother is of normal intelligence. No consanguinity of parents. Mother had a miscarriage at 6 months in 1938, prior to pregnancy with our patient. Two siblings, who are younger than our patient, are healthy and developing normally. Maternal cousin had convulsions. At present, patient attends second grade, industrial classes, physical education and all entertainments. He works on the farm in season and shows considerable improvement in his behavior.

Case 5. L. E., white male, born September 13, 1923. A premature, instrumental birth. Birth weight 4½ pounds. Fifth pregnancy. Mother was 30 years of age at time of patient's birth. She developed headaches, high blood pressure and swelling of ankles during the seventh month of pregnancy. Had convulsion before delivery. Peculiarity of baby was noticed at one year of age, manifesting itself by retardation of motor development. He was admitted to the Wrentham State School at 15 years of age. He is an epileptic, blind child with spastic quadraplegia, lateral nystagmus, bilateral optic atrophy, defective speech, scaphoid chest,

slight scissors gait, bilateral positive Babinski. Blood and urine were normal.

Psychological Examination revealed a M.A. of 4 2/12 years and an I.Q. of 28. Another test at 24 years of age shows a M.A. of 3 years with an I.Q. of 19.

Family History. Parents are of normal intelligence and healthy. Three brothers and one sister are older than our patient and high school graduates. No consanguinity of parents. At present, patient is in good health, likes music and can say a few words.

Case 6. E. M., white female, born June 14, 1917. Premature, difficult instrumental delivery at eight months. Birth weight 5 pounds. First pregnancy; mother was 27 years of age at time of patient's birth. Developed swelling in her ankles. Urine was loaded with albumin in the seventh month of pregnancy. At the end of the eighth month, labor was induced because of convulsions. She remained in the hospital for one month after delivery; had vaginal hemorrhages. At the end of this period, she was completely recovered. The child was kept in an incubator for one month. She began to talk and walk at three years of age. During the first year of life, jerky motions were observed and the mother noted that after a long walk tremors of leg muscles appeared. Patient had chorea minor in childhood; was admitted to the Wrentham State School at 11 years of age as a behavior problem. She is an undernourished, left-handed female with mottling of skin over the entire body, diminished superficial reflexes, poor coordination. Speech is somewhat indistinct at times.

Psychological Examination revealed a M.A. of 6 2/12 years and an I.Q. of 55 on admission. Another test at 33 years of age showed a M.A. of 6 years and an I.Q. of 38.

Family History. Father is deceased. No siblings. According to the mother, the family history is negative on both sides. At present, the patient is healthy, works in the industrial department, and attends all entertainments.

Case 7. R. P., white female, born August 17, 1935, at full term. Prolonged delivery (12 hours) due to breech presentation. Birth weight 6 pounds 9 ounces. First pregnancy; mother was 19 years of age at time of patient's birth and had toxemia of pregnancy, beginning at the end of the sixth month, and continuing throughout the pregnancy with high blood pressure, suffered swelling of

ankles and feet, vomited, had headaches and albumin in urine. She gained 65 pounds during pregnancy, and had convulsions on the delivery table. Developmental retardation of the child was noticed at 6 months of age. She began to walk at 2 years of age, however, does not talk. At the age of 20 months, a P.E.G. showed markedly enlarged symmetrical lateral and third ventricles with moderate amount of air over the cortex. She was admitted to our school at 7 years of age. She is an undernourished child, who drools and grinds her teeth. Oxycephalic head (head circumference is 48 cm.; length, 17.2 cm.; width, 13.2 cm.), asymmetrical face, the right side being larger than left with a long, pointed chin, bulging forehead, a slightly everted left foot; positive left Babinski; hyperactive reflexes; unsteady gait with feet widely spread.

Psychological Examination revealed on admission a M.A. of 8 months and an I.Q. of 10. Another test at 19 years of age revealed a M.A. of 10 months and an I.Q. of .05.

Family History. Parents normal. There are two younger brothers who had normal birth deliveries and development. At present, the patient requires constant care; picks at herself causing sores.

Case 8. S. W., white male, born March 23, 1944 at full term by difficult prolonged (2 days) delivery. Birth weight 9 pounds. Fourth pregnancy. According to the mother, ether was administered but she does not know whether instruments were used during delivery. Mother was 36 years of age at birth of patient, and developed albuminuria, high blood pressure, ankle edema from the seventh month to term. No convulsions were observed. The child was slow from birth on, did not sit up, nor recognize anyone, and was a feeding problem. He was taken to the hospital at the age of 10 months because of his slow development, suspected deafness and blindness. He was diagnosed as mentally retarded and blind. He had mastoiditis at one month of age. He is an over-active boy with marked flat feet, unsteady gait, hyperactive knee jerks, alternating internal strabismus, defective hearing and vision; undescended testicles.

Psychological Examination revealed a M.A. of 5 months and an I.Q. of 12.

Family History. Parents are normal. There is one sister, younger than the patient, developing normally; one half-sister and

two half-brothers are normal. Paternal cousin is mentally retarded. At present, the patient is over-active, and requires constant supervision. Began to walk at 10 years of age.

Case 9. F. P. E., white male, born August 1, 1948 by premature delivery at eight months. First pregnancy. Birth weight was 5 pounds 8 ounces. The mother was 18 years of age at birth of patient and developed severe pre-eclamptic symptoms during the eight months of pregnancy with high blood pressure, albuminuria and swelling of ankles. She had convulsions at delivery and a cesarean section was performed. At the age of two months the child was placed in a foster home. He began to walk at 16 months of age; talked at 2½ years. He was examined at the Home for Little Wanderers at 5 years of age; he had an I.Q. of 69. He was then sent to the Metropolitan State Hospital for continued observation. Diagnosis at that hospital was, "chronic brain syndrome of unknown or unspecified cause, with mental retardation, moderate." Institutionalization was recommended. He was admitted to the Wrentham State School at 5 years of age. He is a small, pale, under-nourished, shy, apprehensive boy with triangular, small face, left internal strabismus, hyperactive reflexes, and moderate speech defect.

Psychological Examination revealed a M.A. of 2 6/12 years and an I.Q. of 50.

Family History. Father unknown. Mother's I.Q. is 90 on Bellevue Verbal Test. No consanguinity of parents. Half-sister is mentally retarded. At present, the patient attends sense-training class. He is listless at times, and cries easily.

Case 10. H. J., white male, born March 5, 1933, at full term. Third pregnancy. Mother had labor pains for two weeks before patient's birth. Face presentation, a prolonged, difficult, instrumental delivery. Mother had severe toxemia during the last month of pregnancy with high blood pressure, ankle edema, albuminuria and convulsions. At birth the child showed some cuts and bruises and was a "blue baby." He never was well. During the first few months he grimaced a great deal, but had no convulsions. He developed very slowly, he began to walk and say a few words at two years of age. He was admitted to the Wrentham State School at the age of 13 years. He has always been untidy, uncooperative, requires constant supervision, and is

difficult to care for. He has an oxycephalic head, alternating internal strabismus; slow, defective, drawn-out speech and hyperactive reflexes.

Psychological Examination revealed a M.A. of 1 3/12 years and an I.Q. of 10.

Family History. Parents are nervous. Father graduated from high school and mother is a college graduate. First two pregnancies were miscarriages, the last being twin boys at 5½ months. The third pregnancy was our patient, and the fourth was a girl, who also was reported to be slow mentally. At present the patient is in the Foxboro State Hospital where the following diagnosis was made: "mental deficiency, severe, with impairment of brain tissue function, with psychosis."

Case 11. F. M., white male, born December 10, 1935 by premature delivery at eight months. Birth weight 5½ pounds. A case of forced labor because the mother developed severe toxemia during the seventh month of pregnancy. Mother was 21 years of age at birth of patient. During the first two months of pregnancy she had slight vaginal bleeding and pain in both legs; at six months edema of ankles and hands, high blood pressure, albuminuria developed and she was hospitalized at seven months. At the end of eight months her condition became severe. The child was born two days after the membrane ruptured, under ether anesthesia with forceps. The child had a prominent caput succedaneum, and was resuscitated with difficulty. He was in an oxygen tent for six days. At 18 months he had a series of convulsions. At the age of 5 years another period of convulsions was observed. He had bilateral cataracts and eleven operations between 7-13 months of age were required to complete removal of cataracts. A right herniotomy and orchidectomy were performed because of a strangulated hernia at the age of 1½ years. He began to walk at 18 months and spoke a few words at 2 years of age. He was admitted to the Wrentham State School at 11 years of age. He is an obese, apprehensive boy with aphakia, marked flat occiput, bilateral positive Babinski, left undescended testicle and palpable thyroid.

Psychological Examination revealed a M.A. of 3 8/12 years and an I.Q. of 34.

Family History. There were no other siblings in the family, no miscarriages nor stillbirths. Parents are of normal intelligence.

Mother is nervous, has low blood pressure and had a goiter operation after patient's birth. Maternal uncle of father had epilepsy. Maternal great cousin became paralyzed at 4 years of age; had convulsions afterwards and died at 24 years of age. At present patient is healthy, very talkative, courteous, has a good disposition, helps in the buildings and attends entertainments.

Case 12. C. D., white male, born July 13, 1929, at full term. First pregnancy. Birth weight 8 pounds. Breech presentation; a prolonged (3 days) instrumental delivery. Mother was 29 years of age at the birth of patient and developed high blood pressure, albuminuria, ankle edema during the eighth month of pregnancy and was kept on a diet till delivery. The patient has had right torticollis since birth. At the age of 3 months he was in an automobile accident. At two years of age he fell downstairs. He began to walk and vocalize at two years of age. He was admitted to the Wrentham State School at the age of 8 years because of destructiveness and his mother's inability to control him. On admission he appeared to be a well-nourished, over-active boy, with right torticollis, marked asymmetrical face, prominent frontal bosses, scaphoid scapula, and defective speech.

Psychological Examination revealed a M.A. of 1 6/12 years and an I.Q. of 18. Another test at 26 years of age revealed a M.A. of 1 10/12 years with an I.Q. of 11.

Family History. Both parents were above average, both in intelligence and social standing. Three younger children are normal. At present the patient does not talk, but hums, is clean and behaves well.

Case 13. K. T., white male, born January 17, 1927, by premature instrumental delivery at seven months. Mother was 31 years of age at birth of patient, suffered from toxemia of pregnancy necessitating early delivery; had high blood pressure, edema, albuminuria which developed at the beginning of the seventh month. Two months previous to delivery, the mother was in an automobile accident. The peculiarities of the baby were noticed at one year of age when he failed to talk, walk or take any interest in anyone. He began to walk at 3 years of age, but did not talk, was untidy and noisy. Struck himself on the face. He was admitted to the Wrentham State School at 3 years of age. He was a well-nourished boy with marked left internal strabismus, undescended testicles and a hearing defect.

Psychological Examination on admission revealed a M.A. of one year and an I.Q. of 26. Another test at 23 years of age showed a M.A. of 10 months and an I.Q. of .05.

Family History. There were 5 brothers and 3 sisters, all of whom, as well as the parents, are physically and mentally healthy. At present, the patient does not pay any attention to his environment, strikes himself, and is kept restrained to prevent self-injury; dislikes walking and does not talk.

Case 14. H. S., white female, born November 30, 1945, at full term. Birth weight 7 pounds 5 ounces. Sixth pregnancy. Mother was 30 years of age at the time of patient's birth, and had developed toxemia during the eighth month of pregnancy with high blood pressure, albuminuria, swelling of ankles and feet. She was kept on a sodium and meat low diet throughout pregnancy. Pregnancy mask was more noticeable with this child than with siblings. Labor began one week before the expected date; membrane was ruptured artificially; labor lasted for three hours with demerol, and cyclopropane anesthesia. Placenta was bilobed, vessels passing to each part. Placenta and membrane were complete. The child cried after stimulation with CO_2. She began to walk at 14 months, said words at 13 months, and sentences at 2 years of age. Peculiarities in the child were noticed by the mother when she was 13 months because the patient was rigid, quick and impulsive. At the age of 8 years, she was committed to the Metropolitan State Hospital for observation as a behavior problem. The diagnosis on discharge was: "chronic brain syndrome of unknown origin, mental retardation, moderate; behavior problem." She was admitted to the Wrentham State School at the age of 8 years, at which time she appeared to be an over-active girl with alternating internal strabismus. Reflexes were hyperactive.

Psychological Examination showed a M.A. of 3 6/12 years with an I.Q. of 47. A recent test revealed a M.A. of 5 2/12 years and an I.Q. of 55.

Family History. Mother was extremely nervous during pregnancy due to husband's drinking and cruelty. There are five siblings and five half-siblings. No consanguinity of parents. There are no cases of mental retardation in the family, no nervous nor mental diseases. At present the patient is healthy, attends kindergarten, physical education and all entertainments. Her behavior

has improved, but she is still over-active, and has a very short attention span.

Case 15. T. C., white female, born October 6, 1945, at full term. Birth weight 8 pounds 12 ounces. Normal presentation, spontaneous delivery. Second pregnancy. Mother was 23 years of age at the birth of this child. She had toxemia during the last month of pregnancy with high blood pressure, albuminuria and swelling of ankles. The child cried spontaneously after delivery. Peculiarities of the baby were noted from birth because of slow development. She began to walk and spoke single words at 18 months. Behavior abnormality became noticeable, soon after the death of the child's father, when she was 2½ years of age. According to the mother the only play she enjoys is "rough stuff", where she pretends to kill someone with a knife or in some other violent fashion. She will get up at night to look for knives. Mother claimed she exposed herself on the street and masturbated openly. She was admitted to the Wrentham State School at the age of 7 years because of unmanageable behavior. Stepfather threatened to leave the mother because of her.

Physical Examination revealed a well-nourished, husky, cooperative, alert, affectionate girl, with flat occiput, large outstanding ears, flat helices.

Psychological Examination on admission showed a M.A. of 4 8/12 years and an I.Q. of 68. Another test at 10 years of age revealed a M.A. of 5 10/12 years with an I.Q. of 61. At present her behavior is improving. She likes attention, attends kindergarten and all entertainments.

Family History. Father was killed in an accident. He and his family were normal. Mother's health is good in general, except for the last month of her pregnancy with this patient. Her family is also healthy. No consanguinity of parents. The first pregnancy was a boy who is developing normally; the second is our patient; the third was a miscarriage at 3 months which followed the moving of a heavy wardrobe, and the fourth, a half-brother who is developing normally. In this case, according to the history, no signs of birth trauma are present.

Case 16. M. K. B., white male, born April 4, 1942, at full term. Birth weight 8 pounds 8 ounces. Birth was instrumental. Third pregnancy. Mother was 33 years of age at time of patient's birth.

Mother developed high blood pressure, albuminuria, ankle edema from the fifth month until term. She was very depressed, suffered lapses of memory and did not eat well during pregnancy. This child was peculiar from birth. He sat up at one year, walked at 3 years, talked at 5 years and his first teeth appeared at one year. An electro-encephalogram (E.E.G.) was done which showed diffuse brain injury. He developed a very destructive behavior. Mumbled in his sleep and ground his teeth. He was admitted to the Wrentham State School at the age of 10 years. He is a well-nourished, over-active, friendly boy with speech defect.

Psychological Examination revealed a M.A. of 5 years and an I.Q. of 39.

Family History. Parents are of average intelligence. Father is alcoholic and a diabetic. Maternal grandmother was mentally ill. There are a brother and a sister, both older than the patient. The brother was born by a difficult, instrumental delivery. He walked and talked in his sleep in childhood, has diabetes and high blood pressure. At present, the brother is married and has one daughter who is normal. The sister was born following a pregnancy complicated by toxemia, and labor was induced because of toxemia of pregnancy. She has a tic, and talks a great deal in her sleep. At present patient works in the industrial department, helps in the building, behaves well, attended kindergarten until 12 years of age. Enjoys all entertainments.

Case 17. M. J. A., white male, born November 30, 1944, at full term by cesarean section. Birth weight 9 pounds 13 ounces. First pregnancy. Mother was 18 years of age at the birth of the child. She had severe toxemia during the last months of pregnancy with high blood pressure, ankle edema, albuminuria and convulsions at delivery. Mother gained 56 pounds during pregnancy. There was considerable difficulty in resuscitating the baby, and he was given coramine during the neonatal period. He was a feeding problem, and developed frequent choking spells when fed. Development was slow. He walked at 3½ years, began to say words at 13 months. He was admitted to the Wrentham State School at the age of 4 years. He is a fearful, hydrocephalic boy with a head circumference of 62 cm., incoherent speech, unstable gait, hyperactive reflexes, broad frontal bosses and white raised tumor on left cornea approximately 2 mm. in diameter.

Psychological Examination revealed a M.A. of 1 6/12 years

and an I.Q. of 43. Another test at 11 years of age showed a M.A. of 2 9/12 years and an I.Q. of 27.

Family History. Parents are of normal intelligence. There is a younger brother, who is normal. No consanguinity of parents.

Case 18. S. S., white female, born February 17, 1949, at full term. Birth weight 6 pounds 3 ounces. Second pregnancy. Mother was 28 years of age at time of patient's birth and her health was poor during pregnancy. Nausea and vomiting were severe from the first to ninth month. There was hypertension, albuminuria and severe edema from the sixth month to term. Cesarean section was considered at seventh month, but was deferred and spontaneous delivery took place. Labor began with convulsions and lasted eighteen hours. According to the hospital record, delivery was without forceps. The child was apnoic for three minutes. There was considerable difficulty in resuscitation. An incubator and oxygen were used for 9 days because of collapse of both lungs. She developed convulsions at the age of 11 months. P.E.E. was within normal limits. Microcephaly, with top of head more pointed than usual. She was admitted to the Wrentham State School at the age of 4 years. She appeared to be a well-nourished, microcephalic child with 45 cm. circumference of head, slight circular nystagmus, poor coordination, limited movement of right shoulder, bilateral positive Babinski. Reflexes are hyperactive. She does not talk nor walk; has recurrent epileptic seizures, is not interested in her environment; is very difficult to feed.

Psychological Examination revealed a M.A. of 8 months and an I.Q. of 14.

Family History. Parents are healthy and intelligent. Father stuttered at 11 years of age but was treated successfully. The first pregnancy was an ectopic one with profuse bleeding which terminated by an operation (left tube and left ovary removed). The third child is a boy, who develops normally; the fourth is a girl, born at seven months by cesarean section with a birth weight of 4 pounds 5 ounces. She was in an incubator for 5 weeks and is developing normally. The fifth child is also a girl born at full term by cesarean section with a birth weight of 6 pounds. She is developing normally.

Case 19. C. G. E., white female, born September 23, 1946 by premature twin delivery at 8 months. Birth weight 5 pounds 15 ounces. Breech presentation. Fourth pregnancy. Mother was 20

years of age at the birth of the child. This child was the second of twins. There is no information about the delivery. Mother had swollen ankles at 6½ months of pregnancy with high blood pressure and albuminuria. She had hydramniosis. She had been told before the twin pregnancy that it was impossible for her to become pregnant again because of her endometriosis and fibroids. The child was born with harelip and cleft palate which exposed the entire nasal cavity. The patient had a cleft palate repair at 18 months of age and at 2½ years of age repair of harelip. Mental retardation was noted at one year of age. She sat up at one year, walked at two years, started to say some words at 5 years of age. She was admitted to the Wrentham State School at the age of 5 years. She is a well-nourished, apprehensive girl with operated harelip and cleft palate. She has a marked asymmetrical skull with flat occiput.

Psychological Examination revealed a M.A. of 1 8/12 years and an I.Q. of 37.

Family History. Parents are of normal intelligence. On the paternal side, there are three generations of twin births. Patient's father was one of twins; the other twin was stillborn. On both sides there are many cases of psychosis. Twin pregnancy occurred also on the maternal side. Maternal granduncle has cleft palate. The oldest brother stutters. The patient's twin and three other siblings are healthy and intelligent. At present, patient is healthy, likes to play, shows fair behavior, requires supervision, has speech defect, does not attend school or entertainments.

Case 20. H. H., mongoloid white male, born May 17, 1938 premature, by prolonged (24 hours), difficult, high forceps delivery at eight and a-half months of pregnancy. Birth weight 4 pounds. First pregnancy. Mother was 29 years of age at the birth of the child and developed toxemia at the seventh month of pregnancy. She had slight vaginal bleeding two weeks before the expected date. Labor began one day later. The child started to walk at 3½ years and talked at 6-7 years of age. He was admitted to the Wrentham State School at the age of 10 years. He is a well-nourished, friendly, well-behaved mongoloid boy with limited speech, triangular face, convergent strabismus. Left leg is shorter and thinner than right. Left knee jerks absent.

Psychological Examination revealed a M.A. of 3 2/12 years and an I.Q. of 23.

Family History. Parents are of normal intelligence. Father once had epileptic fits. Paternal uncle had epilepsy. Mother had one miscarriage at 6 months, cause undetermined, between the second and fourth pregnancy. Three children were delivered by cesarean section because of toxemia of pregnancy and are developing normally. At present, patient works in the industrial department and also helps with housework in the building; has a very good disposition; feeds and dresses himself; attends entertainments.

Case 21. H. D. M., white mongoloid female, born December 11, 1941, one of a pair of twins. Premature, instrumental, difficult, prolonged (24 hour) delivery. Birth weight 5 pounds 15 ounces. Mother was 31 years of age at the birth of the child and developed toxemia during the seventh month of pregnancy with hypertension (blood pressure was 180/110), albuminuria, edema and visual disturbance. Mother was involved in an automobile accident early in her pregnancy with this patient and was badly frightened. The placenta showed ischemic infarction (separate placenta). Patient was the first of twins and her twin is a normal boy. Backwardness was noticed when the child made no effort to walk or talk. She had a bilateral cataract which was removed at three years of age from the left eye.

Family History. Negative. Parents are normal and in good health, unrelated by blood. There are three sisters and two brothers who are developing normally. The patient was admitted to the Wrentham State School at the age of 12 years. She is a happy, well-behaved, quiet mongoloid who requires help in feeding. Likes to lie down most of the time. She often talks and sings in an incoherent fashion.

Case 22. K. J. H., white mongoloid male, born October 22, 1940, premature, by prolonged (28 hours) forced labor because of mother's toxemia. Birth weight, 4 pounds. Ninth pregnancy. Mother was 41 years of age at birth of child. Nausea and vomiting began at the third month. She developed high blood pressure, albuminuria, ankle edema at eighth month of pregnancy. The patient walked and talked at 2½ years of age. At nine years of age, he was operated on for diverticulitis. At 13 years of age, a stomach x-ray revealed an ulcer. He was admitted to the Wrentham State School at the age of 14 years. He is a quiet, mongoloid boy with alternating convergent strabismus and horizontal nystag-

mus. He attended kindergarten, and evidenced good home training. Parents took him home after a month's residence here.

Psychological Examination revealed a M.A. of 4 4/12 years, and an I.Q. of 31.

Family History. Parents are normal and in good health, with the exception of toxemia of pregnancy which mother developed with all her pregnancies. The living siblings—first, third, sixth pregnancies—are intelligent and healthy. The second child died of pneumonia and scarlet fever at 10 years of age. The fourth child died, two days after birth, of a heart condition. The fifth and seventh pregnancies were still-births. The child of the eighth pregnancy was a premature delivery at seven months and died at 6 months of age. Cause of death unknown.

DISCUSSION

Toxemia of the mother is very often connected with premature delivery as a therapeutic measure for the mother. Prematurity is known as a very common cause of brain injury to the child, probably because of underdevelopment of the capillaries and lacerability of vessels.

Half of our children were born prematurely and their mental retardation could be the result of brain injuries. Eleven of the children were born at full term, but nine of these also had difficult deliveries and could easily be the victims of birth injury, which may have been hemorrhage or anoxia. In some of the children a subdural hematoma, or caput succedaneum, has been diagnosed.

Repeated maternal convulsions in seven cases, and a large amount of morphine in one case, could have played an important role in fetal anoxia.

With some of our cases, it is easy to prove that their mental retardation is not connected with toxemia of the mother. Three of our cases are mongoloid. The damage to the mongoloid children must have occurred in an earlier stage of pregnancy than toxemia.

The family history of some patients reveals pathological conditions in other members of the family. Toxemia, therefore, cannot be proved as the complete cause of retardation of these children.

We have two cases with negative family histories of the parents who were delivered at full term, and who also had normal labor. We have no reason to assume birth injury. A direct relationship

between toxemia of the mother and mental retardation cannot be denied in these cases. This does not mean that there must be a poison present in toxemia of the mother. It could easily be that ischemia and necrosis of the placenta of toxemic mothers interfere with the normal nourishment of the fetus. The same condition which causes damage to the placenta could also injure the child. This would explain liver necrosis and other pathological findings in children born of toxemic mothers. It is probably the extent of the damage to the placenta which is responsible for the fact that some children, born of toxemic mothers, develop normally while others remain mentally retarded; but in general, birth injury probably plays a more important role as a cause of brain damage to children than does toxemia as a cause of direct damage to the newborn.

SUMMARY

1. We have found twenty-two patients in our population of 2,200 mentally retarded children with a history of toxemia of the mother and have proposed to establish the relationship of toxemia of the mother and brain damage to the child.

2. Eleven of these children were born prematurely. It is possible that they had brain hemorrhages at birth. Nine of the eleven children, born at full term, had delivery complications and birth injury, and it is highly probable and seems to be the decisive factor in mental retardation of children born of toxemic mothers.

3. Mental retardation of some of our patients cannot be related primarily to their mother's toxemia, that is, in mongoloids or familial oligophrenics.

4. Two children only had no recorded symptoms of birth injury; both had negative family histories, showed behavior problems and moderate mental retardation. The possible relationship of direct damage because of the toxemic condition of the mother to these children has been discussed.

REFERENCES

1. Assali, N. S.: Toxemia of Pregnancy, Clinical Symposia, 6:1, 1954.
2. Bar, P.: Des Lesions du Foi et des Reins chez les Foetus nes de Meres eclamptiques. L'Obstetrique, 8:269, 1903.
3. Bartholomew, R. A.: Initiation of Toxemia during Labor. Am. J. Obst. & Gynec., 62:246, 1951.
4. Brash, A. A.: The Effect of Toxemia of Pregnancy upon the Foetus and Newborn Child. Arch. Dis. Childhood, 24:107, 1949.
5. Bund, R.: Uber das spätere Befinden eklamptischer Mütter und ihrer Kinder. Zentralbl. f. Gynäk., 49:2879-2884, 1925.

6. Cromer, G. W., Jr.: The Relationship of Prolonged Labor to Fetal Mortality. Am. J. Obst. & Gynec, 62:1086, 1951.
7. Dieckmann, W. J.: The Toxemias of Pregnancy. 2nd Ed., St. Louis, 1952.
8. Drillien, C. M.: Studies in Prematurity Stillbirth and Neonal Death: Factors Affecting Birth-Weight and Outcome. J. Obst. & Gynec. Brit. Emp., 54:300-323, 1947.
9. Entres, J. L.: Die Kinder eklamptischer Mütter, ein Beitrag zur Lehre vom Geburtstrauma. Allg. Ztschr. f. Psychiat., 81:258, 1924.
10. Jervis, G. A.: Medical Aspects of Mental Deficiency. Am. J. Ment. Deficiency, 57:175, 1952.
11. Johnson, H. W.: Etiology of Eclampsia: Evaluation of Some of the More Recent Theories. Texas State J. Med., 44:527-532, 1948.
12. Jones, W. S.: Essential Hypertension with Superimposed Pre-eclampsia. Am. J. Obst. & Gynec., 62:387, 1951.
13. Lambeth, S. S.: Neonatal Mortality in a Small General Hospital. Obst. & Gynec. Surv., 3:177, 1954.
14. Latham, D.; Anderson, G. W. and Eastman, N. J.: Obstetrical Factors in the Etiology of Cerebral Palsy. Am. J. Obst. & Gynec., 68:91, 1954.
15. Lloyd, T. S., Jr.; Ward, S. V. and Sellers, T. B.: Fetal Trauma from Forceps Delivery. Am. J. Obst. & Gynec., 62:129, 1951.
16. Labarsch, O.: Die Puerperaleklampsie. Ergebnisse der Allgemeinen Pathologie und Pathologischen Anatomie des Menschen und der Tiere. 1896.
17. McGuire, K. C.; Keettel, W. C. and Wilben, E. E.: Toxemia and Fetal Survival. Obst. & Gynec. Surv., 3:195. 1934.
18. Neugarten, L.: Über das Schicksal der Kinder eklamptischer Mütter. Zentralbl. f. Gynäk., 49:1938-1944, 1925.
19. O'Connell, W. T.: The Effect of Toxemia of Pregnancy on the Newborn. Am. J. Obst. & Gynec., 62:672, 1951.
20. Schachter, M.: Pregnancy Toxicosis in Relation to Neuro-Mental Prognosis of Offsprings. Praxis, 39:267-268, 1950.
21. Schmorl, G.: Pathologisch-anatomische Befunde bei Eklampsie. Verhandl. d. deutschen Gesselsch. f. Gynaek., Leipzig, 179-1892.
22. Schmorl, G.: Pathologisch-anatomische Untersuchungen über Puerperal-Eklampsie. Leipzig, 1893.
23. Schmorl, G.: Zur Lehre von der Eklampsie. Arch. f. Gynäk., 65:504, 1902.
24. Schmorl, G.: Zur Kenntnis des Ikterus Neonatorum, insbesondre der dabei auftretenden Gehirnveraenderungen. Verhandl. d. deutsch. path. Gesellsch., 6:109, 1903.
25. Siedentopf, H.: Aufzuchtswert und Mortalitat der Frühgeburten. München. med. Wchnschr., 84:884, 1937.
26. Schwartz, Ph. and Fink, L.: Morphology and Etiology of Hemorrhage caused by Birth Trauma in Brain and Skull of the Newborn. Ztschr. f. Kinderh., 40:427, 1926.
27. Stewart, H. C.: The Problem of Prematurity: Obstetric, Pediatric and Socio-Economic Factors. J. Pediat., 47:13, 1955.
28. Taylor, H. C., Jr.; Tillman A., J. and Blanchard, J.: Fetal Loses in Hypertension and Pre-eclampsia. Obst. & Genec. Surv., 3:371, 1954.
29. Tompkins, W. T. and Wiebl, D. G.: Nutritional Deficiencies as a Causal Factor in Toxemia and Premature Labor. Am. J. Obst. & Gynec., 62:898, 1951.

CONGENITAL HEART DISEASE IN INFANTS DIAGNOSED BY AID OF HEART CATHERIZATION AND ANGIOGRAPHY. I. Boesen, J. Lind, B. Merrild-Hansen and others. (Ugesk. laeger, 117:707-712, June 2, 1955). Congenital heart disease was diagnosed clinically and by means of heart catheterization and/or angiography with intracardial injection of constrast substance in 34 out of 37 infants examined; 17 were theoretically operable. In 11 cases there was hypertension in the pulmonary artery combined with septum defect and left-right shunt. The examinations disturb the infants but little, and the results allow operation to be recommended in a number of patients on a considerably more certain diagnostic basis than previously.—*J.A.M.A.*

TREATMENT OF FUNCTIONAL CONSTIPATION WITH PRUNE-MALT*

ANTHONY J. MAFFIA, M.D.
New York.

Constipation is one of the common complaints in infancy and childhood. Many parents consider it a clinical entity which requires prompt treatment.

Contrary to the opinion in some quarters, there is no evidence that constipation causes irritability, anorexia, vomiting and fever in infants or sluggishness, headache, vertigo and flatulence in children and adults. The term constipation requires definition and to have the criteria for its diagnosis clarified.

Constipation is characterized by the passage of infrequent stools which are hard, dry and difficult to evacuate as compared to the individual's usual bowel habits.

There is a marked physiologic variation in respect to normal frequency of defecation, ranging from 5 to 6 daily to one every 2-3 days, although the average is from 1 to 2 daily. Rarely does one see a healthy child who normally has a stool but once a week.

There is also wide variation in consistency from mushy to dry putty stool. The appearance of the stool will depend upon its composition which in turn depends upon (a) type of food ingested, (b) the capacity for digestion of different food constituents, (c) intestinal motility, (d) amount and rapidity of absorption and (e) the bacterial flora. Constipation is more troublesome when it causes pain or bleeding on defecation.

Physiology. At irregular intervals, but particularly after meals, large peristaltic movements occur at various levels of the colon which push large masses of content toward or into the sigmoid colon. The sigmoid, and especially the rectum, is most sensitive to distention or irritation. The passage of this fecal mass into the rectum gives rise to the sensation of urge to defecate. In infants, the mechanism is not under cerebral control and stool is immediately evacuated by a poorly understood reflex pattern. When cerebral inhibitory control becomes manifest, the mechanism of defecation may be conditioned, at which time the child is trained

*From the Department of Pediatrics, New York Medical College, Flower and Fifth Avenue Hospitals, New York, N. Y.
Prune-Malt supplied by the Benson-Nuen Laboratories Inc., New York 10, New York.

for stool. This will occur at different ages. Evacuation is produced by a downward contraction of circular muscles and a shortening and contraction of the longitudinal muscles. This is associated with relaxation of the anal sphincter, reflex contraction of abdominal and levator ani muscles and of the diaphragm. The stool is then forced through the anal opening.

The nerve supply of the colon is incompletely understood. The sensory impulses are conducted by both sympathetic and the pelvic nerves. However, the urge to defecate occurs via the sympathetic system (1st and 2nd lumbar). Centers for control of colon activity are located in the central nervous system and are influenced by local reflexes, conditioned reflexes, habit formation and nervous states. The colon can easily become subject to the cathartic or enema habit, and may become atonic or spastic secondary to abnormal behavior states.

Etiology. Improper diet is probably the most common cause of constipation. It is also a contributory factor to constipation, where there are other direct causes for the condition. A diet that is high in protein, low in carbohydrates and low in fluids and residue tends to produce constipation. It is possible that the present trend in infant feeding toward high protein and low carbohydrate formulas has increased the frequency of constipation; more particularly since formulas made with evaporated or whole cow's milk contain mostly casein as the predominant protein. Casein produces a firmer curd which is more difficult to digest and is considerably more constipating than lactalbumin (See Table 1).

TABLE 1

	Human Milk %	*Cow's Milk* %	
		Whole	*Evap.*
Protein	1.0-1.5	3.2-4.1	6.8-7.0
lactalbumin	0.7-0.8	0.5	1.1
casein	0.4-0.5	3.0	5.7
Sugar (lactose)	6.5-7.5	3.5-5.2	7.9-8.2

Unless underfed, breast-fed babies are seldom constipated. Breast milk has a higher carbohydrate and much lower casein content than cow's milk.

The stools in constipated infants of dietary origin are usually hard, dry and have a putrid odor. Occasionally there is a perianal irritation of several millimeters in radius. Frequently, only the first part of the stool is hard and difficult to evacuate, the rest of the stool being soft.

A second common cause of constipation is the prolonged use of enemas, laxatives, cathartics and suppositories which have been used without regard to physiologic indication. Most cathartics act by one of three fundamental mechanisms. The irritant cathartics, such as phenolphthalein, castor oil and cascara, are drugs which irritate the intestinal tract and thereby increase its motor activity. This leads to rapid expulsion of intestinal content. The bulk cathartics, such as milk of magnesia, psylliums and agar, increase intestinal contents—these are milder and somewhat more physiologic. The emollient cathartics lubricate the intestinal tract and facilitate passage of feces. The common one used is mineral oil.

Enemas and suppositories act by artificially stimulating the rectum. Enemas, suppositories and laxatives may produce temporary relief but then gradually become less effective. Larger and more frequent doses are then required to produce the desired result. The final result may be termed "cathartic, suppository or enema addiction."

Anal fissure is common in infants and is a frequent cause of constipation. Initially, the fissure may be caused by the insertion of a thermometer or enema tip or by a hard stool. The local pain then reflexly inhibits bowel movement. Subsequent constipated stools further aggravate the fissure and a vicious cycle ensues. Severe crying before defecation and blood on the outside surface of the stool is pathognomonic. Breaking the cycle by softening the stool physiologically, anal dilatation and relief of local pain will rapidly heal the fissure.

In early childhood a common cause of constipation is faulty training and habits. Faulty bowel habits often date back to infancy, when parents are anxious to have training completed by 18 months, whether the infant is developmentally ready for it or not. It is difficult to teach parents that stool control varies considerably in children, that it may not be until about 2½ years of age or more before control is developmentally complete. Over-anxiety often leads to negativism and constipation in the child. Bad habits are

particularly seen in school-age children where urge to stool interferes with school routines or with playtime. When the urge is neglected repeatedly, constipation is inevitable, and becomes worse if these children are on a high protein, low carbohydrate, residue poor diet.

Psychological factors often play a role as a cause of constipation. Fear of toilet and of sitting down to defecate, and that bowel movement is "disgusting" are not uncommon. Some cases are relatively simple, requiring only proper education of the parents. Some persistent cases arise from more complex causes, e.g., parental rejection, insecurity, and may require competent psychiatric investigation.

The cause of constipation discussed above may be termed "functional." Organic causes of constipation in infancy are relatively rare. They may be due to mechanical obstruction, e.g., congenital stenoses and atresias, malrotation of the bowel, congenital megacolon (agenesis of myenteric plexus).

Regulation of diet will help correct the dietary causes of constipation, whether they are primary or contributory. Clinically, a dietary combination of prune juice, containing a factor which gently stimulates peristalsis and a carbohydrate, such as malt, which changes the intestinal bacterial flora, would seem to be an ideal method of physiologically correcting functional constipation. (It is of interest that the effective factor in prune juice is not isatin as has been previously reported. Jansen, of the Agricultural Research Service, United States Department of Agriculture, states[8] that the laxative principle in prune juice is not an isatin derivative which it has been claimed to be. They are currently working on the isolation and identification of this principle).

The purpose of this paper is to evaluate such a dietary aid in the treatment of functional constipation in infants and children. This is a palatable mixture containing prune and fig concentrate and non-diastatic malt syrup neutralized with potassium carbonate.

Method of Study. Two hundred constipated infants and children, ranging in age from 3 months to 8 years, were treated. The diagnosis of constipation was made on the following criteria: (1). Decreases in frequency of stools as compared to the child's usual bowel habits. (2). Passage of hard, dry stools.

All infants and children were carefully examined, and where indicated, laboratory and radiologic studies were done to rule out any organic lesion. During the study, no changes were made in the diet and no drugs were given.

One hundred of the constipated cases were given Prune-Malt® added to their diet, the remaining alternated cases were used as controls. Wherever possible, cases of equal severity and ages were equally divided between the two groups.

Dosage of Prune-Malt® Used:

Infants 3 weeks to 1 year	2 tablespoonfuls daily added to milk or juice.
Children 1-4 years	3 tablespoonfuls daily added to milk or food.
Children 4-8 years	4 tablespoonfuls daily added to milk or food.

The mothers of the two hundred children were given a card to record daily number and description of stools, all associated findings, if any, and acceptability of Prune-Malt® by the child. The study was conducted for 3 weeks, and the results recorded from the cards returned by the mothers.

TABLE 2. *Results.*

	Returned to Normal	*Improvement*	*No Improvement*
Prune-Malt®	28	51	21
Control	16	25	59
Acceptability:	*Good*	*Fair*	*Poor*
	132	47	21

COMMENT

Since most of the cases of constipation in infants and children are functional in character, two important directions must be followed in treatment. First, the parent must be educated to free herself from the fears of constipation. Anxious parents must be taught to understand the normal physiologic variations of bowel movements, and the psychologic factors involved. Also, the parents must be warned against use of any artificial means to produce a bowel movement without advice from their physician. Persistent

use of enemas, cathartics and suppositories is unphysiologic, and tends to destroy the normal stimulus to stool, and is not without danger. They should be used only when specifically indicated. Secondly, regulation of the diet will correct or improve almost all cases of constipation in infants and children. This may be accomplished by:

1. Increasing carbohydrates, such as dextrins, maltose and other polysaccharides.
2. Increasing bulk and residue, e.g., cereals, especially whole grains, vegetables, etc.
3. Increasing fluid intake.
4. Feeding natural food laxatives, e.g., prunes, figs, malt foods, etc. The use of Prune-Malt® as a supplement to the diet seems excellent for the purpose.

SUMMARY

1. The physiology, etiology, criteria and treatment of constipation were discussed.

2. A dietary aid was given to 100 children with "functional" constipation compared to a similar number who were untreated.

3. Of those infants and children given Prune-Malt,® there was a 28 per cent return to normal and 51 per cent improvement. The controls demonstrated 16 per cent return to normal and a 25 per cent to improvement.

4. It is concluded that under the conditions of the study, Prune-Malt® is of help in the treatment of functional constipation.

BIBLIOGRAPHY

1. Mitchel-Nelson: Text book of Pediatrics, 4th Ed.
2. McQuarrie, I.: Brenneman's Practice of Pediatrics.
3. Reichert, J. L.: Pediat. Clin. North America, May 1955.
4. Nyhan, W. C.: Stool Frequency of Normal Infants in First Week of Life. Pediatrics, 10:414, 1952.
5. Wolman, I. J. and Borowsky, S.: Influence of Minor Dietary Changes on Frequency of Infant Stool. Study of the Effect of Varying the Content of Lactose, Milk Fat and Thiamin. Am. J. Dis. Child., 65:827, 1943.
6. Wolman, I. J.: Major Motility Patterns of the Child's Ingestive Tract, A Review. Am. J. M. Sc., 207:782, 1944.
7. Hatfield, M. A.; Simpson, R. A. and Jackson, R. L.: A Study of the Comparative Response of Young Infants to Human Milk and the Various Types of Cow's Milk Formulas. J. Pediat., 44:32, 1954.
8. Jansen, E. F.: U. S. Dept. of Agriculture, Research Service. Personal Communication, Nov. 9, 1955.

PEDIATRICS AT THE TURN OF THE CENTURY

From time to time the Archives, which was the first Children's Journal in the English language, will reprint contributions by the pioneers of the specialty over fifty years ago. It is believed that our readers will be interested in reviewing such early pediatric thought.

THE "DIATHETIC" CHILD*

LEGRAND KERR, M.D.
Brooklyn.

At the present time the whole field of human activity is permeated with a moral revival, whose chief characteristic is its diversity of form. Whether it applies itself to the subject of dress, housing, business, or to the health of the individual, the demand is the same: to do better than in the past.

This demand can only be satiated by the evidences of individual endeavor. Success, while it is expected as the ultimate result, forms no part of the demand, which in its last analysis is not so much for result, as for effort. The individual is simply recognized as a unit, and the ultimate element of the whole, so that the cry goes up: "Give to the individual all of the necessary means and facilities for his highest possible development, and so improve the whole mass of society."

The field occupied by pediatric study is no exception to the influences of this movement, for as witnesses we have only to recall the very recent strides, resulting from education and legislative enactment, which go to safeguard the early moral, mental and physical development of the human being. Far as the results are from what they should be, farther yet as they are from the ideal, still there is observed here, as in all other fields, the demand for betterment.

The child in the early days of his existence is a much less settled being than is popularly supposed. The elements which determine the final development of that life are not already formed, as they are usually considered to be. The fallacy of over-estimating the importance of heredity is so great and so deep-rooted, that

*Reprinted from ARCHIVES OF PEDIATRICS, 23: 267-271, April 1906.

many factors are accepted as being due to hereditary influence, which are, in fact, in no way connected with it. If at birth the somatic organization of the child were complete, that would be an end of the matter; we should look for perfectly healthy children from healthy parents, and conversely, the parent with disease, or bodily weakness would hand down that defective organization to the offspring, to hinder and damn it for the whole term of its life.

But fortunately this is not so, for while heredity has its place and a very important one in its influence upon the development of the child, environment is a far more potent factor in the production of delicate children.

In his early career, the child is influenced by an indefinite number of things which, according to their kind and nature and his susceptibility to their influences, mould and shape his bodily development. If we intend him to be developed in the highest possible way and to the highest possible point, we must control all of these influences. The control must not be similar to that of the adult; this is just where most of the errors are made. The control must of necessity be suited to the immature condition. The best handling of the problem comes when we recognize what the child really is, instead of having preconceived notions of what he might become. A correct and clear conception of what the child is will lead to a better appreciation of what he needs; then will come the time for a system of definite treatment, so that he may attain the highest development possible.

Recognition of a diathesis presupposes that the appropriate measures will be pursued to prevent the disease, which may be dependent upon such diathesis. Here was the place where the old-fashioned family physician held a position which was nearly ideal. Occupying a position of peculiar intimacy and confidence with each and every member of a family, he was able not alone to cure their ills, but by timely advice and warning to prevent the occurrence of disease, the tendencies to which he was able to foresee. The more this prerogative of his was curtailed, the more necessary became the need of a substitute. At the present time with its socialistic tendencies, this duty is largely relegated to the commonwealth. I have no hesitancy in predicting a time in which the State and communities will practically have complete control of the physical and

mental development of the child. This will not only take cognizance of the child already born, but by the prevention of the marriage of unsuitable persons prevent the propagation of diseased and diathetic children.

The history of medicine, as far back as we can trace it, shows that in all times recognition has been made of the fact that under apparently similar conditions, one person becomes ill, while the other remains in normal condition.

The pathologist studies all cases necessarily upon somewhat of an experimental basis, ferreting out the laws of injurious effect which harmful agents have upon all members of society. He is unable to explain by this method the cause of every disease. The disease may be produced by conditions which are not at all general. The result is, that we are forced to the conclusion that there exists some casual factor in the individual which is not common to all members of society. This casual factor is called "constitution."

There are two ways to care for a diathetic child: first, to wait until the diathesis gives expression of itself in the production of a distinctly diseased condition, from a slightly active cause, or to prevent such an occurrence by a proper fortification of the system against such invasion.

Surely the latter is the better procedure. Now, such a vague expression as a strong or a weak constitution, a lymphatic or bilious tendency, does us no good in the treatment of the child. In most instances, any such tendencies are not recognized until the occurrence of some distinct disease, which is supposed to be typified by them, and then the statement is boldly made that the child has this, that, or the other tendency.

The only method which seems to be of any great service at the present time is the proper estimation of the functional capacity. The day is rapidly approaching when we will no longer cloak our ignorance of the beginning of disease, under the flexible term "functional." This is the point toward which clinical medicine now tends.

Idiosyncrasies, I believe, are not simply interesting curiosities of medicine, but that more and more they will prove to be of large scientific value in the study of production and also prevention of disease in the child.

In Foster's Dictionary, I believe that there are tabulated under the head of "Diathesis" fifty-seven different varieties. This number is far in excess of what actually exist. Most likely the error comes from a mixture of terms. The socalled hereditary diseases are not essentially diathetic. Heredity is the principle by virtue of which the offspring tends to resemble its ancestors.

One of the great sources of error is made in considering the history of disease in the parents, but leaving out of all consideration that of the grandparents and great-grandparents. We can never be entirely clear as to hereditary influences upon the child until we trace back farther than the parents.

Another error is the interchangeable use of the terms hereditary and congenital which inevitably lead to a lack of clear clinical judgment.

It is very evident that a congenital condition antedates birth and is acquired in intrauterine life, but this is not true of heredity, which may have a more remote origin than the parent.

Again, in heredity, one or more of the ancestors must have suffered from the disease in question; to be congenital, this is not at all necessary.

A diathesis is a congential condition of the system which renders it particularly liable to certain diseases. What are these congenital conditions? First, and foremost, the tuberculous; second, the uric acid; third, the hemorrhagic; fourth, the obese. In classification, there is the greatest diversity of opinion; here is where we will probably have the most strenuous discussion.

I do not recognize a scrofulous diathesis, and if I did would never make it synonymous with the tuberculous, for with appropriate treatment, a scrofulous tendency is rapidly and easily eradicated, if taken early, and any alarm as to the occurrence of tuberculosis goes with its cure. This is not true of the tuberculous diathesis.

The tuberculous diathesis plays as important a part in the genesis of tuberculosis as does the exciting cause itself. Independent of direct infection, there can be no development of the disease. In the presence of the diathesis, it requires but a slight exposure to start the process. Under exactly similar conditions, the diathetic child will succumb, while the non-diathetic one will probably

escape. Those who hold that infection only comes through direct contact, and that diathesis has nothing whatever to do with the disease, ignore the evidences offered by carefully constructed insurance tables, which cover thousands of cases and over a long term of years. The fight, then, properly comes not against the disease only, but against the source of the infection and also the diathesis.

In children, the disease is acquired most readily in one of two ways: through the digestive or the respiratory tract. Therefore, we have two types predominating in childhood, the gastrointestinal and the pulmonary. The former can only rise from food infection, and so eliminating the very remote chance of direct infection through the nipple, can only come through artificial feeding. There are no well-authenticated cases of infection through the milk of the mother.

The earliest positive indications which we have of the existence of the diathesis come with the detection of interscapular dullness and weakened breath sounds of one lung. This latter condition is brought about by the pressure upon the chief bronchus from surrounding glandular enlargement. Caseation of the bronchial lymphatic glands is another evidence, but one hard to obtain, but it may be safely assumed to exist, when there is chronic enlargement of many of the cervical glands, and especially those which lie along the anterior border of the trapezius.

The chief object in the early recognition of the uric acid diathesis has for its aim the prevention of cardiovascular changes. Long before these are liable to occur, the diathesis gives evidence of its existence in a multiplicity of symptoms. It would take too much space to attempt to enumerate even the chief of these. The suspicion once aroused that any symptom may be due to this particular diathesis should at once result in examination and re-examination of the urine, and also of the heart, for the detection of any socalled functional disturbance. Of no part of the body is it more true than of the heart, that continued perversion of function leads to early structural changes. One of the early evidences of uric acid diathesis is functional perversion.

The hemorrhagic diathesis is easily recognizable by the marked influence of heredity. The exact nature of this condition is still

unknown, and its discussion at this time is unnecessary. The factor of inheritance is the point to be emphasized.

There are two kinds of obesity: one which may be termed mere fatness, or pinguidity, the other which is diathetic and which is dependent upon the failure of perfect oxidation. This obese diathesis may be likened to diabetes and the accumulated fat to sugar. In diabetes the solubility of the unoxidized sugar leads to its presence in the urine in abnormal quantities. In the obese diathesis, deficient oxidation leads to the deposit of fat in the tissues.

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA IN NURSLINGS WITH ANATOXINS ADSORBED ON ALUMINUM HYDROXIDE AND ALUMINUM PHOSPHATE: COMPARATIVE RESPONSES TO THE TWO VACCINES. A. Jemma. (Minerva nipiol., 5:41-44, March-April 1955). The immunizing efficacy and the eventual reactions following antidiphtheria vaccination with anatoxins adsorbed on aluminum hydroxide and on aluminum phosphate, respectively, were studied in two groups of infants, most of whom were nurslings in the first year of life. The first vaccine was used for 38 infants, 10 of whom were born prematurely; the second was used for 41, and of these 7 were born prematurely. The infants were given two injections of each vaccine, the first in a 1 cc. dose, the second, four weeks later, in a 0.5 cc. dose. The inoculations were given intramuscularly because with this route the formation of nodules at the side of injection is prevented and the immunization is better. There was no local reaction in any of the infants and febrile reactions, when they occurred, were commoner in the premature infants; they were always, however, mild or moderate in degree. Immunity was increased in all; after 30 days, results of the Schick test were negative in 37 (97.4%) infants of the first group and in 38 (92.7%) of those in the second group. In one premature infant of the first and in three normal infants of the second group, the test gave a reaction that was slightly positive. The results of this study indicated that one vaccine is not superior to the other with regard to increasing immunity and causing febrile reactions.—*J.A.M.A.*

BOOK REVIEWS

HANDBOOK OF PEDIATRICS. By Henry K. Silver, M.D.; C. Henry Kempe, M.D. and Henry B. Bruyn, M.D. Paper. Illustrated. Pp. 548. Price $3.00. Los Altos, Calif.: Lange Medical Publications, 1955.

This is the type of book that medical students dream of and by the same token can be very valuable to the busy clinician for ready reference. A wealth of information is contained in this small volume which can be carried in pocket or bag. The material is presented in concise and outline form and whatever information it contains will suffice for the moment and help refresh the memory. The book contains many tables and charts of laboratory findings, differential diagnoses, doses of drugs, etc. which are of great value. At the end of the book there is a listing of the common name, chemical poison and antidote of the many household poisons. A so-called "rapid index" system is printed into the book which makes reference to sections of the book easier. This book is highly recommended and the low price is most surprising but nonetheless welcome. MICHAEL A. BRESCIA, M.D.

PROCEEDINGS OF THE THIRD MEDICAL CONFERENCE OF MUSCULAR DYSTROPHY ASSOCIATIONS OF AMERICA, INC. Edited by H. D. Bouman, M.D. Paper. Illustrated. Pp. 324.

This volume contains the papers which were presented at a symposium on muscular dystrophy held in New York on October 8 and 9, 1954. All the material in this volume was previously published in the American Journal of Physical Medicine, Vol. 35, No. 1, February 1955. Practically all the material relates to fundamental research dealing with the physiology and chemistry of muscle action. Hence the volume has little appeal to the clinician. There is only one article by A. T. Milhorat on the Diagnosis of Muscular Dystrophy, consisting of six pages, that might be of interest and even this article does not seem to be too gratifying to the avid clinician. MICHAEL A. BRESCIA, M.D.

ITEMS

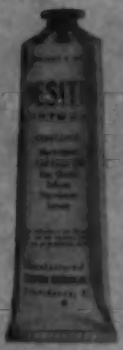
Anemia in Premature Infants. R. Crément. (Presse méd., 63:935, June 18, 1955.) The cause of the anemia seen in premature babies is a marked deficiency in hematopoietic activity during the neonatal period. Premature infants begin life with a greater volume of blood than babies born at term: 108 ml. per kilogram, dropping to 73 ml. per kilogram toward the seventh week of life. The volume of red blood cells falls from an estimated 46 ml. per kilogram at birth to 16 ml. by the seventh week. The number of reticulocytes falls extremely low during the first week of life and remains so for the next five to six weeks. During this period, the fall in red blood cells and hemoglobin level is considerable: 1.1 to 1.3% daily in the case of the former and 1.2 to 1.43% daily in the case of the latter. Spontaneous improvement, heralded by reticulocytosis, begins after the five-to-seven-week period. During the first three or four months of life the body of a premature infant has more iron than is necessary for hemoglobin synthesis, so iron therapy is not indicated at that time. It is of value later on. Transfusion therapy has proved its merit in the treatment of anemia of prematurity, but it should be discontinued after hematopoiesis picks up, because it might interfere with the process of spontaneous correction.—*J.A.M.A.*

Neonatal Convulsions. A. Minkowski, S. S.-A. Dargassies and D. Samson. (Rev. prat., 5:1553-1561, May 21, 1955.) In 19 cases of neonatal convulsions out of 67 observed over a five-year period, 7 babies died. The two worst prognostic signs were early onset and, especially, long duration of the convulsive state. Favorable signs were: predominance of signs of meningeal irritation (rigidity, tremor) over signs of central nervous disorder (staring, lack of Moro reflex, respiratory disorders); cherry red color of the cerebrospinal fluid; rapid improvement in the general condition after one or two lumbar punctures; and improvement in the neurological state in less than four days. When the state of suffering lasts more than 24 hours treatment is urgently required. This should consist of repeated lumbar puncture and the administration of massive doses of chloral and gardenal.—*J.A.M.A.*

Primum Non Nocere

The primary concern of the dermatologist is embodied in the dictum, "Primum Non Nocere," meaning "*First do no harm.*"[1,2]

A major attribute of Desitin Ointment is its non-sensitizing, non-irritant, non-toxic[3,4] quality even when applied over extensive, raw skin areas. To soothe, protect, lubricate, and accelerate healing ... without causing "therapeutic" or "overtreatment" dermatitis ... rely on



DESITIN®

OINTMENT

rich in **cod liver oil**

in **diaper rash • wounds** (especially slow healing) **ulcers** (decubitus, varicose, diabetic) **• burns dermatoses • rectal irritation**

Tubes of 1 oz., 2 oz., 4 oz., and 1 lb. jars.

May we send **samples** *and literature?*

DESITIN CHEMICAL COMPANY • 70 Ship Street, Providence 2, R.I.

1. Overall, J. C.: Southern M. J. 47:789, 1954. 2. Editorial: New England J. M. 246:111, 1952.
3. Grayzel, H. G., Heimer, C. B., and Grayzel R. W.: New York St. J. M. 53:2233, 1953.
4. Heimer, C. B., Grayzel, H. G., and Kramer, B.: Archives of Pediatrics 68:382, 1951.
5. Behrman, H. T., Combes, F. C., Bobroff, A., and Leviticus, R.: Ind. Med. & Surg. 19:512, 1949.
6. Turell, R.: New York St. J. M. 50:2282, 1950.

A section of the laboratories at Beech-Nut's Canajoharie plant. Trained scientists test both raw materials and finished baby foods.

Dedicated to Babies' Well-Being ...every step in the production of Beech-Nut Baby Foods!

This the makers of Beech-Nut Foods believe: that only the freshest, purest, most carefully prepared foods are good enough for America's babies.

To this end raw foods must pass rigid scientific tests for quality and freedom from toxins before processing begins. Foods are prepared and processed by skilled hands and the most modern machines under constant inspection and laboratory control.

Beech-Nut's laboratories are manned by graduate biologists, bacteriologists and chemists equipped with the latest scientific apparatus for food testing and research.

Beech-Nut exerts unceasing care to produce foods high in nutrients and pleasing to babies' taste.

You are cordially invited to visit the Beech-Nut plant in Canajoharie, N. Y. —and see for yourself how our baby foods are made.